

## NOTES AND COMMENTS

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### A NEW STRUCTURE ON THE HIND LEGS OF MALE *MONALOCORIS CARIOCA* CARVALHO AND GOMES (HETEROPTERA: MIRIDAE)

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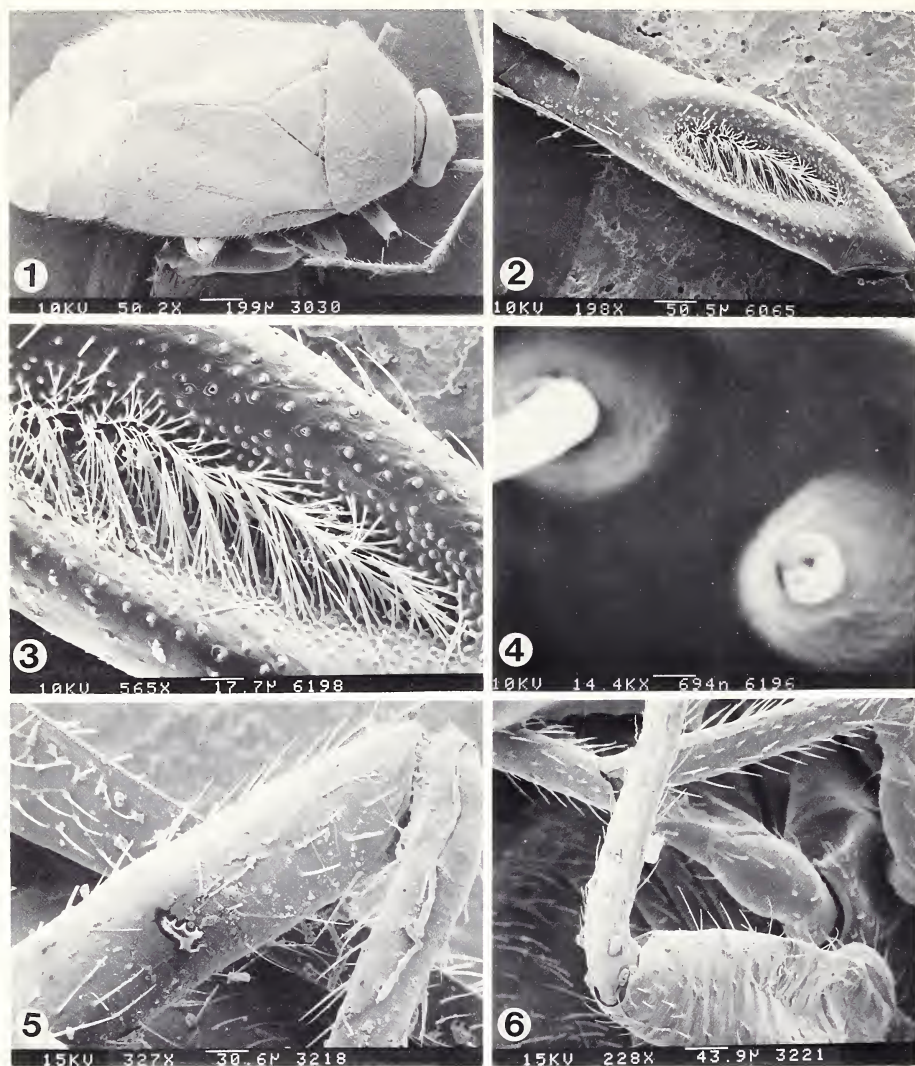
*Monalocoris* (Byrocorinae: Bryocorini) consists of eleven tropical and temperate species (Carvalho, 1957, 1981; Carvalho and Gomes, 1969). Only two (*M. americanus* Wagner and Slater, 1952 and *M. eminulus* Distant, 1893) are known for North America; three (*M. carioca* Carvalho and Da Penha Gomes, 1971, *M. eminulus* and *M. pallidiceps* Reuter, 1907) are neotropical. The Bryocorini are considered to be one of the most derivative tribes of the Miridae (Schuh, 1976).

While examining samples of the South American species *M. carioca* (Fig. 1), author JMC noticed that adult males possess a depression on the prolateral surface of the slightly swollen hind femora. We decided to compare the femora of males and females of this species and of *M. americanus*, examine the fine details of the depression and suggest possible functions for it.

Two adult pairs of both *M. carioca* and of *M. americanus* were studied with an IDS-DS 130 scanning electron microscope at the Electron Microscopy Laboratory, University of California (Berkeley). Since *M. carioca* is rare in collections, additional material of this species was examined only with light microscopy to prevent damage to the specimens. Confocal scanning microscopy and high voltage electron microscopy were also employed to obtain correlative microscopical data for the innermost portions of the hairy depression in two hind femora of *M. carioca*. Confocal scanning microscopy, which allows optical sections of objects, is particularly useful when the structures of interest are relatively hidden (McCarthy and Walker, 1988). High voltage electron microscopy, an instrument that can penetrate thick samples (Bastacky, 1986) and allows magnifications to about  $10^6\times$ , was mainly employed to ascertain whether there were orifices on the leg depression.

Collection data for the specimens examined were as follows: *M. carioca*, Colombia, Anolaima Cund., 10 Sept. 1965, J. A. Ramos (1♂, 3♀♀) [JMC (=Jenaro Maldonado Capriles) collection]; Alban. Cund. (2♂♂) (JMC collection). *M. americanus*, USA, Pennsylvania: Centre Co., 2 mi N State College, ex *Dryopteris* sp., 10 June 1977 (Schuh, Henry, Wheeler) (1♂, 1♀) (American Museum of Natural History = AMNH); New York: Albany Co., Rensselaerville, Huyck Preserve, ex *Dryopteris* sp., 29 June–2 July 1977 (R. T. Schuh) (1♂, 1♀) (AMNH); Tennessee, Gatlinburg, Beach Gap, GSMNP, 5,500', S sweeps, 2 July 1947 (R. H. Whittacker) 21h 5 53, 1♀ PARATYPE (AMNH, Donation from J. A. Slater Collection). These specimens are noted with a yellow label that reads VOUCHER SPECIMENS SEM studies *Monalocoris* (Hemiptera: Miridae) hind femora.

On male *M. carioca*, the hairy, oval, submedial depression is located on the pro-



Figs. 1-6. 1-2. *Monalocoris carioca*. 1. Adult male (dorsal). 2. Hind femur of male (pro-lateral). 3-4. Depression on hind femur of male *M. carioca*. 3. Detail. 4. Setae on depression (note tubercles, seemingly flexible insertions and an orifice on one seta). 5. Hind femur of female *M. carioca*. 6. Slightly swollen hind femur of male *M. americanus* (prolateral, note absence of hairy depression).

lateral face of the slightly swollen hind femora (Fig. 2). The depression measures about  $280 \times 80 \times 50 \mu$ . Confocal scanning microscopy and scanning electron microscopy showed that the setae cover all of the depression but are most abundant on the lower two-thirds (Fig. 3). The setae are located on tubercles, are hollow and

their insertions seem flexible (Fig. 4). No evidence of orifices was found in the depression. The hind femora of females are neither swollen nor do they have this depression (Fig. 5). Male *Monalocoris americanus* have a slightly and uniformly swollen hind femora (Fig. 6), but lack a depression, while female femora are neither swollen nor depressed. Apparently, this structure is unknown in other congeners.

#### DISCUSSION

In our literature search we were unable to locate references for a similar structure on the hind femora in any heteropterous family. Either this depression has been overlooked or it possesses no known homologues amongst the Heteroptera. Possible hypotheses concerning the functional significance of the depression are: 1. olfactory or mechanoreceptive and 2. secretory. The setal morphology and their seemingly flexible insertion suggest an olfactory or mechanoreceptive function. However, the closely appressed setae covering the depression suggest a liquid retention function from a putative secretory organ, but the absence of orifices on the depression, through which a secretion could be oozed, questions (but does not necessarily reject, Schneider, 1966) this hypothesis. Also, it is strange to have a secretory opening or organ on a leg.—*Jorge A. Santiago-Blay, Department of Entomological Sciences, University of California, Berkeley, California 94720 U.S.A., and Jenaro Maldonado Capriles, Urbanización Aponte 61-1, Cayey, Puerto Rico 00633.*

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### RECORDS OF *CHIMARRA SOCIA* (TRICHOPTERA: PHILOPOTAMIDAE) FROM INTERIOR HIGHLAND STREAMS IN ARKANSAS AND MISSOURI

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The known distribution of *Chimarra socia* Hagen (Trichoptera: Philopotamidae) in North America includes southeastern Canada and the northeastern United States north of a line extending from the northwestern corner of Minnesota to central Pennsylvania, and southward in the Appalachian Mountains at least as far as Tennessee (see fig. 14, Lago and Harris, 1987). However, recent field work (and the discovery of some previously collected specimens) has revealed the presence of populations of *C. socia* in several streams in the Interior Highlands (Ozark and Ouachita Mountains) of Arkansas and Missouri. Faunistic investigations of intervening areas (Illinois, Ross, 1944, 1948; Kentucky, Resh, 1975; Arkansas, Unzicker et al., 1970) have failed to produce specimens of true *socia* and current work in Missouri and Arkansas has not revealed populations outside these mountain streams. Apparently these populations are relicts of what was once a much more widely distributed species, rather than representing a simple range extension.

Among the specimens examined during this study was a series of *C. socia* from the Albert Pike Recreation Area in Montgomery County, Arkansas. The occurrence of *socia* at this locality prompted the reexamination of the paratype of *C. parasocia* recorded from the same vicinity by Lago and Harris (1987). This specimen proved to be *C. socia*, and its inclusion in the type series of *parasocia* was based on misinterpretation of data recorded during initial examination. The dorsal aedeagal rods are slightly rotated so that the apices are nearly parallel (a condition seen in *parasocia*), but other characters are typical of *socia* (not *parasocia* as stated by Lago and Harris, 1987).

Specimens on which the following records are based are housed in the insect